

# MIATECH SOLUTIONS, A PIECE OF THE PUZZLE



Bio Turbo 100



Bio Turbo 300



Bio Turbo 1000



Bio Turbo 6000

## Four Stage Filtration

<u>Step 1:</u>	Air Filter.
<u>Step 2:</u>	Cell Destruct Filter.
<u>Step 3:</u>	Generation Chamber destroys Ethylene and Airborne Pathogens.
<u>Step 4:</u>	The catalytic Converter removes all the ozone.

## BIO-TURBO Series

### Ethylene Removal & Airborne Pathogen Killer Specification Sheet

#### Features

- Smart LED's for easier service
- Remote On and Off control (except Bio Turbo 100)
- Easy service
- Easy changing of ozone plates and filters
- Four models for proper coverage
- Aluminum and Stainless Steel reactor bed
- Easy to install and operate
- Low maintenance



# Bio-Turbo Specifications

Model	BIO-TURBO 100	BIO-TURBO 300	BIO-TURBO 1000	BIO-TURBO 6000
Maximum volume	Up to 100 cubic meters (3500 cubic feet) per 24 hours	Up to 300 cubic meters (11500 cubic feet) per 24 hours	Up to 1000 cubic meters (43200 cubic feet) per 24 hours	Up to 6000 cubic meters (200000 cubic feet) per 24 hours
Airflow	3 CFM (0.1 CMM)	8 CFM (0.3 CMM)	30 CFM (1 CMM)	200 CFM (6 CMM)
<b>Location Requirements</b>				
Electrical Source	100/115/230 VAC 50-60 Hz	100/115/230 VAC 50-60 Hz	100/115/230 VAC 50-60 Hz	100/115/230 VAC 50-60 Hz
<b>Electrical</b>				
Power	120 or 220 VAC	120 or 220 VAC	120 or 220 VAC	120 or 220 VAC
Power Consumption in Watts	127 Watts	130 Watts	144 Watts	360 Watts
Amp Draw at 120 Volts at 230 Volts	1.2 Amps 0.550 Amps	1.2 Amps 0.550 Amps	1.2 Amps 0.550 Amps	3.0 Amps 1.25 Amps
Power cord	8 ft (2.5m)	8 ft (2.5m)	8 ft (2.5m)	9 ft (3m)
Operating Voltage	24V	24V	24V	24V
<b>Maintenance</b>				
Air Filter	Change every 12 months	Change every 12 months	Change every 12 months	Change every 12 months
Ozone Plate(s)	Change every 12 months	Change every 12 months	Change every 12 months	Change every 12 months
Number of Ozone Plates	1	1	2	4
<b>Specifications</b>				
Dimensions:				
Generation Chamber		10"x12"x10" (25x30x25cm)	10"x12"x10" (25x30x25cm)	15"x15"x15" (38x38x38cm)
Catalytic Converter/Controller	Unit dimensions: 15"x17"x7" (38x43x18cm)	14"x11"x11" (36x28x28cm)	14"x14"x11" (36x36x28cm)	19"x19"x19" (48x48x48cm)
Reaction Chamber		12"x14"x30" (30x36x76cm)	48"x30"x15" (122x76x38cm)	4'x8'x2' (122x244x61cm)
Total Weight	30 lbs (14 kg)	41 lbs (18 kg)	90 lbs (34 kg)	160 lbs (60 kg)
<b>Construction</b>				
Materials	Aluminum – unit cabinet, Stainless Steel – Perforated Generator Plate	Aluminum - Generation Chamber, Catalyst Converter/Controller Stainless Steel – Perforated Generator Plate Aluminum–Reaction Chamber	Aluminum - Generation Chamber, Catalyst Converter/Controller Stainless Steel – Perforated Generator Plate Aluminum–Reaction Chamber	Aluminum - Generation Chamber, Catalyst Converter/Controller Stainless Steel – Perforated Generator Plate Aluminum–Reaction Chamber
<b>Controls</b>				
	N/A On/Off switch	Remote control On/Off switch	Remote control On/Off switch	Remote control On/Off switch

# BIO TURBO 6000

## BIO TURBO 6000 INSTALLATION GUIDE

### **Description**

The Bio Turbo 6000 is referred to as the BT-6000. The 6000 indicates the amount of Cubic Meters the unit can properly control within a 24 hour period. The BT-6000 was designed to remove ethylene from cold rooms and storage areas where fruit and vegetables are stored, extending their life. The system should be suspended from the ceiling and operate continuously. The unit comes with a remote for convenience of operation if needed at ground level.

The air is first pulled into the Generation Chamber, and then goes through a particle filter to remove dust and foreign matter. After the air goes through a second filter which is a microbial filter, this filter will destroy 99.9% of the bacteria, fungi, mold, mildew, algae and other one celled organisms which cause odors, spoilage and rot. The air with ethylene then enters the ozone generation area where it mixes with ozone.

The air, after mixing with ethylene and ozone, then enters the Reaction Chamber where the ethylene has contact time with the ozone. Ozone will destroy ethylene upon contact.

The Reaction Chamber is made of aluminum which is a metal that is less reactive to ozone.

After the ozone destroys the ethylene in the Reaction Chamber, it enters the Catalytic Converter which uses a special catalyst to deplete the remaining ozone. Clean air is then expelled through the Controller at the exit of the BT-6000.

### **System Placement**

The Bio Turbo is designed to be mounted on the ceiling. Ethylene rises, so the higher the units are mounted the better. A receptacle will be necessary to connect to either 110 VAC or 230VAC power. The

beam structure of the ceiling should be considered also when mounting this unit.

**Note:** Due to the weight of the Bio Turbo system, we recommend having at least two installers.

**STEP 1:** The large metal Reaction Chamber should be mounted first. The Chamber is 244 cm (96") long and 122 cm (48") wide. You will find a channel with mounting holes punched from end to end, a threaded rod, and a special nut with a spring attached. The channel should be attached to the ceiling beam. Depending on the type ceiling rafters in your installation area, we recommend 6mm lag bolts with large washers. The nut goes into the channel with the spring facing the holes, and the two rows of teeth on the nut go onto the inside of the channel. To fix the rod that holds the Reaction Chamber you should screw it tightly into the spring inside the channel. See Picture 1.

**STEP 2:** Now you should hang the Reaction Chamber by bolting it to the rod mount (see picture 1). You may also need to hang the opposite side of the chamber temporarily with rope, until the mounting of the Generation Chamber and Catalytic Converter unit is finished.

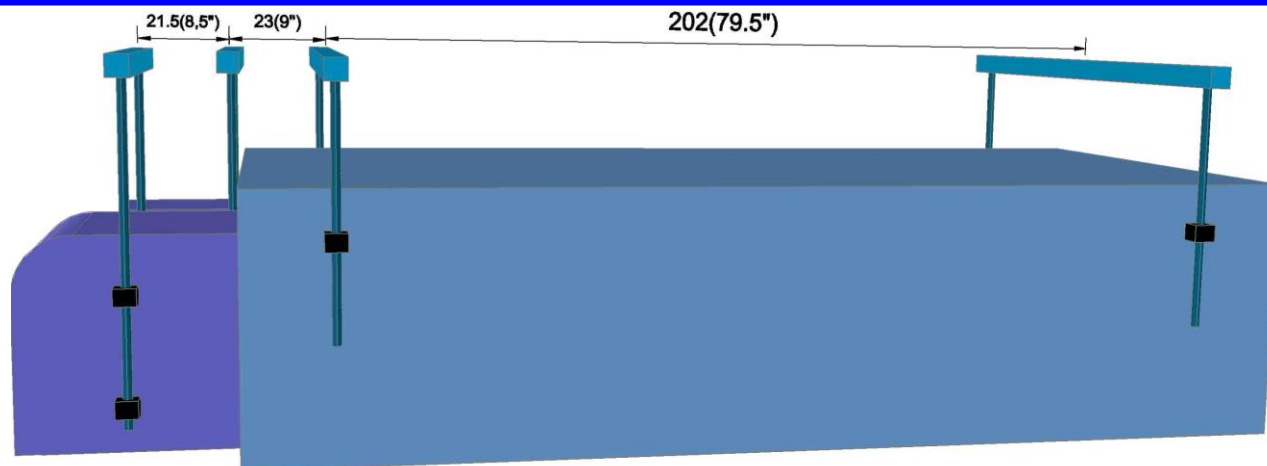
**STEP 3:** First – measure 202 cm (79.5") between the centers of the channels that are holding the Reaction Chamber. The Generation Chamber has to be mounted on the shorter channel. The center needs to be in 23 cm (9") from the center of the Reaction Chamber channel. The Catalytic Converter unit also has to be mounted on the shorter channel. It's center has to be 21,5 cm (8.5") away from the Generation Chamber channel center. These two channels will be mounted side by side. Use the supplied 2" lag bolts with washers to mount these channels. These channels must support 25kg (55 lbs.) of weight for the system's three units. Ensure that the channel bars are mounted securely to a ceiling joist or beam. See picture 2, 8.

**STEP 4:** Screw the spring loaded nuts into each end of each of the 4 threaded rods. Screwing the threaded rod flush with the nut will be sufficient. See Picture 1. Rods with spring loaded nuts should be bolted onto the rod mounts on both sides of the



Picture 1

# BIO TURBO 6000



Picture 2

Generation Chamber and the Converter units. See Picture 3.

**STEP 5:** The catalyst is in a separate chamber of the Catalytic Converter. Simply open the top section of the Catalytic Converter and pour the catalyst into this section. The required amount is supplied in the BT-6000 Starter-kit. See Picture 4.



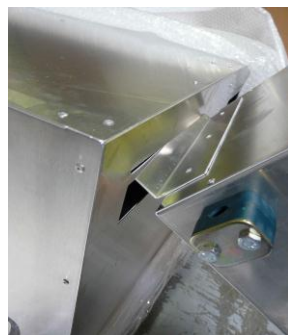
Picture 4

be placed into the Reaction Chamber slot). See Picture 5. Then screw the Generation Chamber and Catalytic Converter threaded rods onto the channels placed on the ceiling. Secure the threaded rods with bolts on both sides of each of the small boxes. See Picture 3, 6.



Picture 3

**STEP 6:** The Generation Chamber and the Catalytic Converter should be mounted by inserting them into the Reaction Chamber (tilt the smaller boxes at an angle allowing them to



Picture 5

**STEP 7:** Plug the remote into the controller and route the remote box to the desired location.

**STEP 8:** Connect the wiring connectors between the Controller and the Generation Chamber. See Picture 7.

**STEP 9:** Plug the long power cord into the proper power receptacle. Either 230 VAC or 110 VAC. The system's operating voltage is shown on the serial number label on the side of the catalyst converter unit.



Picture 6

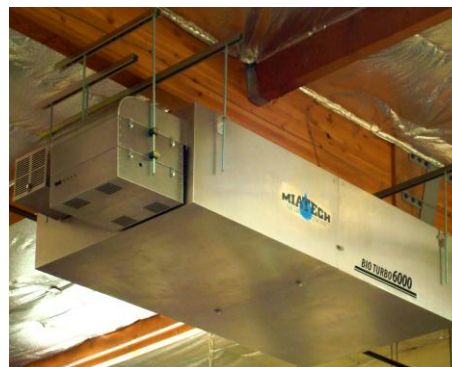


Picture 7

**STEP 10:** There should be two LED's "glowing green" on the Controller.

**STEP 11:** Turn "ON" the power switch on the remote control. The other two LED's should "glow green" and then the fan should start. At this point, the system will be fully operational.

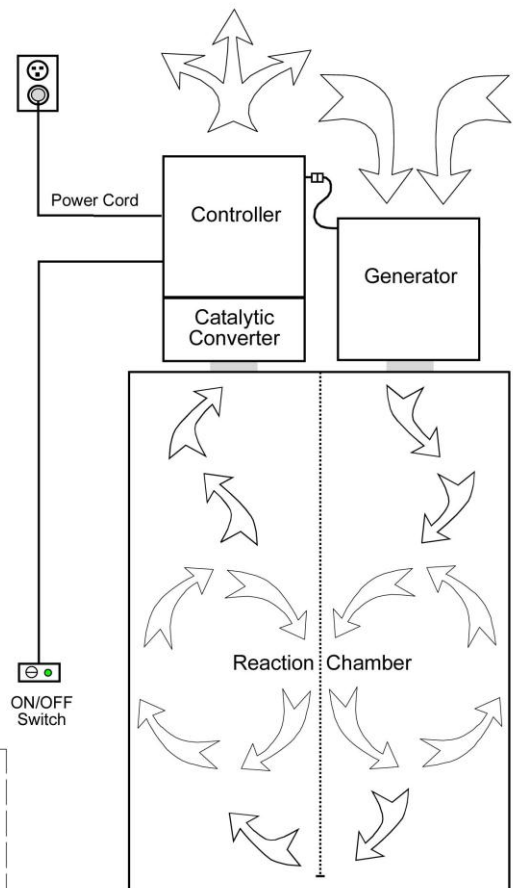
**STEP 12:** The LED on the side on the Generation Chamber should be "glowing green". The Generation Chamber should also emit a low hum indicating the Generator plates are producing Ozone



Picture 8

# BIO TURBO 6000

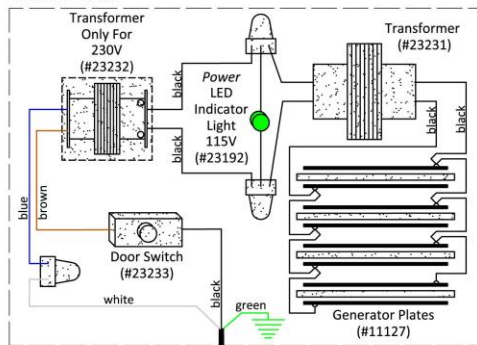
## BIO TURBO 6000 LAYOUT DIAGRAM



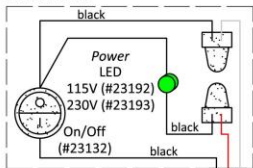
**Power cord wire colors**

USA	International
Black	Brown
White	Blue
Green	Green

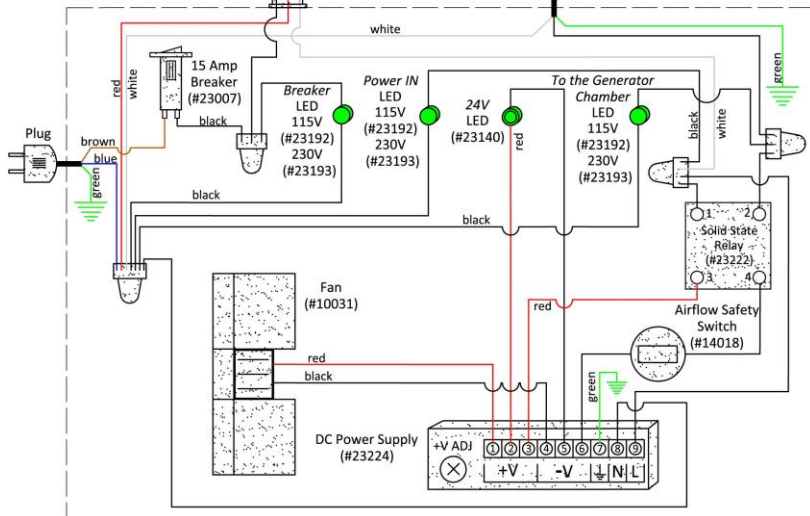
### Generator



### Remote



### Controller



## BIO TURBO 6000 WIRING DIAGRAM

# BIO TURBO 6000

## **CAUTION - ALWAYS UNPLUG POWER BEFORE SERVICE**

### Maintenance Requirements v. 1.2

The Air Filter will need to be replaced once a year or more often, depending on the operational environment. The Ozone Generator Plates should be replaced once a year.

To replace the Air filter:

1. Unlatch the bottom cover on the Generation Chamber and remove the filter. The Air filter is the paper filter next to the intake vents.

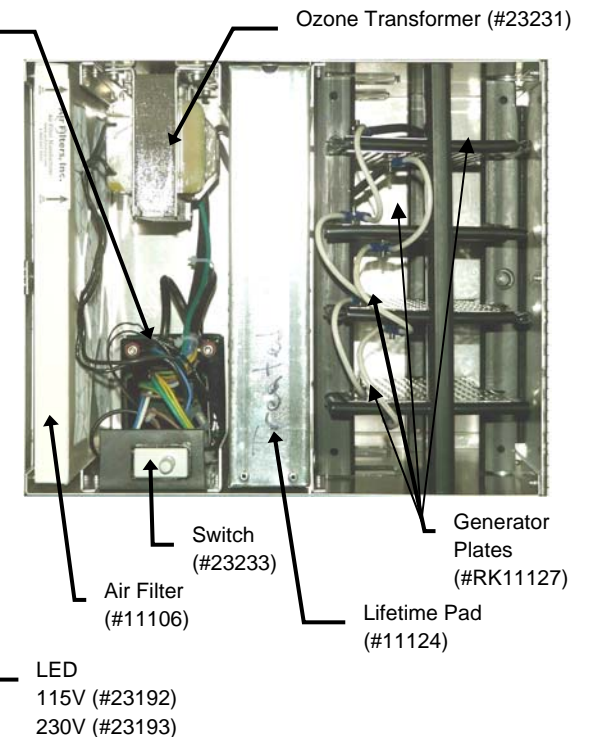
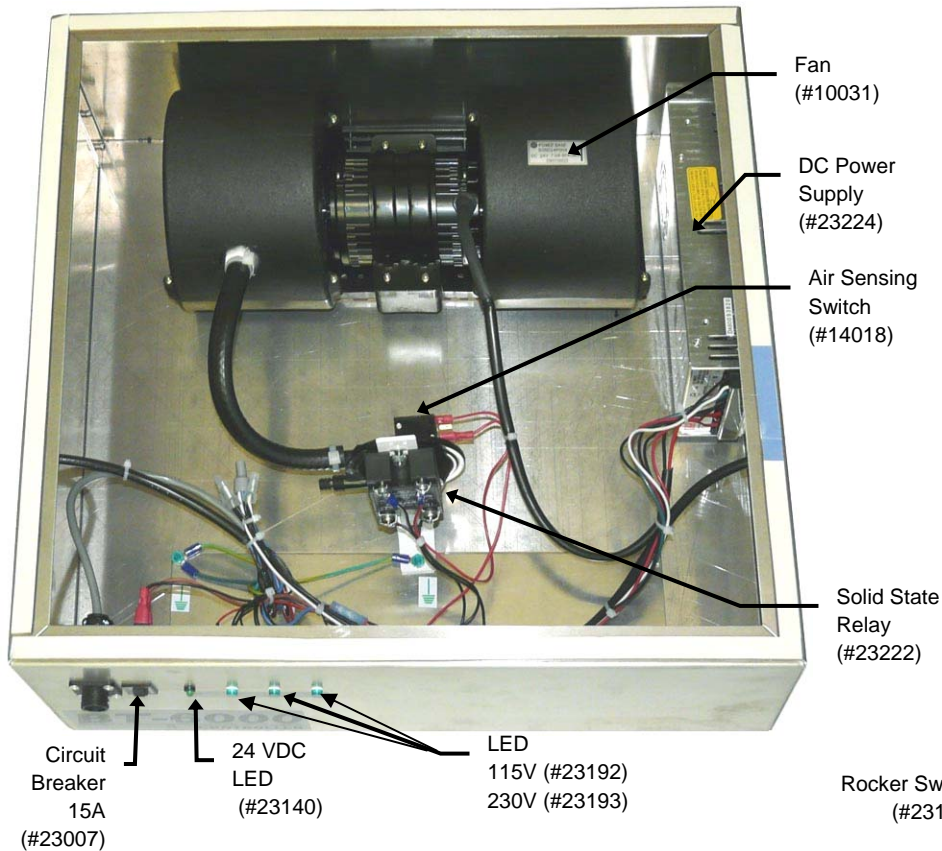
**Caution** – Slowly and carefully open the cover to ensure the filter does not fall down, the door helps secure it in place.

2. Check the Generator Plates and clean or replace as necessary. Clean these plates with a soft cloth and a glass cleaner that leaves no film. Ultra fine steel wool (type 000) can be used but all particles must be removed before reassembly.

### Trouble Shooting

**Bio Turbo system has 6 informative LED's:**

- 1) LED "Power" (on the Remote Control) indicates "Power to the Main Switch".
  - 2) LED "Breaker" (on the Controller Chamber) indicates "Power to the Unit".
  - 3) LED "Power IN" (on the Controller Chamber) indicates "Power to the Power Supply".
  - 4) LED "24V" (on the Controller Chamber) indicates "Power to the Fan".
  - 5) LED "To the Generation Chamber" (on the Controller Chamber) indicates "Power to Generation Chamber".
1. LED "Power" (on the Generation Chamber) indicates "Power to the Ozone Transformer and Ozone Generator Plates".



**For further technical support in North America call 800 933 6478  
If outside North America call to the USA at 503 659 5680  
www.miatech.org**